

REMARKS

In an Office Action dated March 28, 2007, the Examiner has rejected all of the pending claims for a variety of reasons. Initially, it is noted that the Examiner has rejected claims 15-19, 21-24 and 26-34 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. More specifically, the Examiner is of the opinion that the specification did not disclose any particular type of positioning means. As a result, the Examiner cannot fully determine what other structures would be equivalent to the “means” as being claimed. In addition, the Examiner has rejected claims 15-19, 21-24 and 26-34 under 35 U.S.C. § 102(b) as being anticipated by Hashish et al., U.S. Patent No. 5,700,181. Claims 18 and 27 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over the Hashish et al. ‘181 patent in view of the Sotozaki et al., U.S. Patent No. 6,643,882. Claims 23 and 32 have been rejected under 35 U.S.C. § 102(b) as being anticipated by the Hashish et al. ‘181 patent or, in the alternative, under 35 U.S.C. § 103(a) as being obvious over Zeng, U.S. Patent No. 6,244,927.

As hereinafter described, Applicant has cancelled the pending claims and provides new claims 35-55 herewith. It is believed that new claims 35-55 more particularly define the invention for which protection is sought. Reconsideration of the Examiner’s rejections is respectively requested in view of the following comments.

With respect to the Examiner’s rejection of all of the pending claims under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement, Applicant respectively requests reconsideration in view of the newly added claims. More specifically, it is believed that any person skilled in the art would be enabled to make and use the claimed device with means for setting the processing pressure and the claimed device with positioning means. Referring to page 2, last paragraph of the Specification as filed, the positioning means positions

the tool in such manner relative to the surface to be machined that the outlet from which the liquid emerges faces the surface to be machined in particular with a small intervening space. In addition, as hereinafter described, the structure for positioning the tool is now further limited to a structure that positions the tool without changing the pressure under which the supply unit conveys the liquid. Since the present invention is directed to a device which allows changing the processing pressure without changing the supply pressure by adjusting the size of the gap, the positioning means is included in the claims. However, the specific mechanical construction is not part of the invention. As a result, it is believed that new 35-55 comply with 35 U.S.C. § 112, first paragraph, and the written description requirement.

New claim 35 defines a device for abrasive machining of surfaces of components. The device includes a tool having an inlet and an outlet. A supply unit conveys to the inlet a liquid in which abrasive agents are dissolved and which emerges from the outlet. The cross-sectional area of the inlet is smaller than that of the outlet. A positioning means is construed to position the tool in such manner that the outlet faces the surface to be machined and that an area of an annular gap defined by boundary walls of the outlet and the surface to be machined is smaller than a cross-sectional area of the inlet. The positioning means is part of the device. Means are provided for setting a processing pressure without changing the pressure under which the supply unit conveys the liquid. The means for setting the processing pressure is formed by the positioning means.

As hereinafter described, the '181 patent does not show or suggest a device that is limited to a means for setting the processing pressure without changing the pressure under which the supply unit conveys the liquid wherein the means for setting the processing pressure is formed as positioning means. It is noted that the disclosure for the characteristics of new claim 35 can be

found on page 2, last paragraph; on page 3, paragraph 1 and 2; and in claim 6 of the original filed application.

The Hashish et al., '181 patent discloses an apparatus incorporating an abrasive-liquid polishing and compensating nozzle. Referring to Figs. 4-5 of the '181 patent, the apparatus polishes a glass surface by directing an abrasive fluid through the nozzle maintained in close proximity to a surface. The nozzle tip is generally funnel shaped and is wider toward the work surface for assisting transition of the fluid jet from its relatively slow moving normal direction to its high velocity tangential direction. The nozzle is slidably mounted on a support to allow a user to set a rough position relative to the work surface. The proximity between the nozzle and the work surface is controlled automatically by a balancing of fluid pressures acting on the nozzle and its tip (col.3, lines 62-66). Thus, the processing pressure (which is defined by the area of the annular gap between the nozzle walls and the surface) cannot be controlled independently of the fluid pressure of the supplied liquid. This arrangement differs substantially from the device defined in claim 35 which provides a means for setting the processing pressure without changing the pressure under which the supply unit conveys the liquid wherein the means for setting the processing pressure is formed as positioning means. In order to change the processing pressure in the device of the '181 patent, a user must either change the fluid pressure or change the distance between the nozzle and the surface. According to Hashish et al., '181 patent, the change of the latter again is only possible by changing the liquid pressure.

As heretofore described, nothing in the cited reference shows or suggest a device with means for setting the processing pressure without changing the pressure under which the supply unit conveys the liquid. As such, it is believed that claim 35 defines over the '181 patent and is in proper form for allowance.

Claims 36-43 depend either directly or indirectly from independent claim 35 and further define a device not shown or suggested in the art. It is believed that claims 36-43 are allowable as depending from an allowable base claim and in view of the subject matter of each claim. It is noted that claims 36 to 39 correspond to former claims 16 to 19, the subject matter of claim 40 is disclosed in claim 1 of the original filed application, and claims 41 to 43 correspond to former claims 21 to 23.

Claim 44 defines a device for abrasive machining of surfaces of components. The device includes a tool having an inlet and an outlet. A supply unit conveys to the inlet a liquid in which abrasive agents are dissolved and which emerges from the outlet. A positioning means, which is part of the device, is construed to position said tool in such manner that the outlet faces the surface to be machined and to adjust the height of the annular gap defined by boundary walls of the outlet and the surface to be machined without changing the pressure under which the supply unit conveys the liquid, such that the area of the annular gap is smaller than the cross-sectional area of the inlet. As defined, claim 44 is limited to a positioning means (formed as a part of the device) which is construed to position said tool in such manner that the outlet faces the surface to be machined and to adjust the height of the annular gap defined by boundary walls of the outlet and the surface to be machined without changing the pressure under which the supply unit conveys the liquid, such that the area of the annular gap is smaller than the cross-sectional area of the inlet. Such a structure is not shown or suggested in the '181 patent. It is noted that the subject matter defined in claim 44 is fully described in the Specification at page 2, last paragraph; at page 2, paragraph 1 and 2; and in claim 6 of the original filed application.

As heretofore described, the '181 patent discloses a device wherein the proximity of the nozzles to the surface is controlled automatically by balancing hydraulic pressures. (col. 2, lines 22-23) The nozzle includes an extension which can be axially moved relative to the nozzle

body. Specifically, if the nozzle tip *moves* too close to the surface, the forces at the surface increase and the extension is pushed back into the body. Similarly, if the tip wears down from the abrasive action, the forces decrease and the extension automatically advances. (col. 4, lines 14-21) The height of the gap defined by the walls of the nozzle outlet and the surface can only be adjusted by changing the hydraulic forces, and thus, by changing the pressure of the supplied liquid. Consequently, unlike the device of claim 44, adjustment of the height of the annular gap without changing the pressure under which the supply unit conveys the liquid is not possible in the device shown in the '181 patent.

The examiner seems to suggest that the Hashish patent discloses a "positioning means" formed by the fluid. However, the fluid and control unit in the '181 patent do not determine the direction of the nozzle, which is necessary for positioning the tool with the outlet facing the surface. Furthermore, the support 96, as shown in figure 4, roughly sets a position of the nozzle body but has no impact on the position of the nozzle tip (col. 4, lines 54-60), and thus, on the height of the annular gap.

In view of the foregoing, it can be appreciated that the '181 patent does not show or suggest:

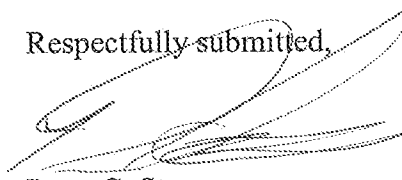
- 1) a positioning means formed as part of the device; or
 - 2) a positioning means which is construed to position a tool in such manner that the outlet faces the surface to be machined and to adjust the height of the annular gap defined by boundary walls of the outlet and the surface to be machined without changing the pressure under which the supply unit conveys the liquid,
- such that the area of the annular gap is smaller than the cross-sectional area of the inlet. Such a structure is entirely absent from '181 patent. As a result, it is believed that claim 44 defines over the '181 patent and is in proper form for allowance.

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Claims 45-55 depend either directly or indirectly from independent claim 44 and further define a device not shown or suggested in the art. It is believed that claims 45-55 are allowable as depending from an allowable base claim and in view of the subject matter of each claim. It is noted that the subject matter of claim 45 is disclosed in claim 1 of the original filed application; claims 46 to 54 correspond to former claims 26 to 34; and that claim 55 corresponds to former claim 24.

Applicant believes the present application with claims 35-55 is proper form for allowance and such action is earnestly solicited. No fees are believed to be payable with the submission of this amendment. However, the Director is authorized to charge any fees associated with this or any other communication, or credit any overpayment, to Deposit Account No. 50-1170.

Respectfully submitted,



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